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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/714,445	11/14/2003	Robert Angelo Mercuri	P1067/N8825	9380
23456	7590	04/06/2006	EXAMINER	
WADDEY & PATTERSON 1600 DIVISION STREET, SUITE 500 NASHVILLE, TN 37203			WOLLSCHLAGER, JEFFREY MICHAEL	
			ART UNIT	PAPER NUMBER

1732

DATE MAILED: 04/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/714,445	MERCURI ET AL.	
	Examiner	Art Unit	
	Jeff Wollschlager	1732	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 February 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>3/1/04; 10/24/05</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

Applicant's arguments with respect to claims 1-12 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 5, 6, and 8-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Lohrke et al. (U.S. Patent 4,752,518; issued June 21, 1988).

Claim 1 is directed to a method of forming impressions in a flexible graphite sheet comprising contacting a flexible graphite sheet with a forming element capable of oscillating against the flexible graphite sheet, whereby the oscillations are such that a plurality of impressions are formed in the flexible graphite sheet.

Lohrke et al. teach a method of forming impressions in a flexible graphite sheet (Abstract; col. 6, lines 12-24) comprising contacting the sheet with a forming element capable of oscillating against the sheet (Figure 5 (30) (31); col. 4, lines 25-29; col. 5, lines 53-61), whereby the oscillations are such that a plurality of impressions are formed in the flexible graphite sheet (Figure 3).

As to claim 2, Lohrke et al. teach the plurality of impressions comprise transverse channels passing through the sheet (col. 6, lines 3-11). It is noted that the definition of the term transverse channel as defined in the specification is equivalent to a hole going through the sheet.

As to claim 3, Lohrke et al. teach that the plurality of impressions comprise indentations in a surface of the flexible sheet (Figure 3).

As to claims 5 and 6, Lohrke et al. teach that the apertures (either indentations or transverse channels) may have different, controlled, spacing through the sheet (i.e. frequency) [col. 5, lines 62-65], and may have different shapes, inherently including depth (i.e. amplitude) [col. 6, lines 21-24].

As to claim 8, the contact pins (Figure 5 (31)) are in contact with the forming element (Figure 5). It is noted that the pressing or tamping mechanism, constituting part of the forming element is not shown in Figure 5.

As to claims 9 and 10, the contact pins appear to be tapered at a degree greater than about 10° and less than about 90° (Figure 5). Further, Lohrke et al. teach the pins may have any shape (col. 6, lines 22-24).

As to claim 11, Lohrke et al. teach that pins may have any shape (col. 6, lines 22-24).

As to claim 12, Lohrke et al. teach that the forming element comprises an oscillating element in operative contact with the contact element, and is capable of creating oscillations in the contact element. The oscillating element is the pressing mechanism in contact with the plate (30). (Figure 5; col. 5, lines 57-60).

Claims 1-4, 6, and 8-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Davis et al. (U.S. Patent Application Publication 2002/0102321; published August 1, 2002).

Claim 1 is directed to a method of forming impressions in a flexible graphite sheet comprising contacting a flexible graphite sheet with a forming element capable of oscillating against the flexible graphite sheet, whereby the oscillations are such that a plurality of impressions are formed in the flexible graphite sheet.

Davis et al. teach a method of forming impressions in a flexible graphite sheet (Abstract; paragraph [0011]) comprising contacting the sheet with a forming element capable of oscillating against the sheet (paragraphs [0027,0036,0039,0043,0051]), whereby the oscillations are such that a plurality of impressions are formed in the flexible graphite sheet (paragraph [0046]).

As to claim 2, Davis et al. teach the plurality of impressions comprise transverse channels passing through the sheet (paragraph [0043]).

As to claims 3 and 4, Davis et al. teach the plurality of impressions comprise indentations that combine to form a passage across a surface of the flexible graphite sheet. In the method of Davis et al. the passage is a flow channel (paragraph [0039]).

As to claim 6, Davis et al. teach controlling the dimensions and cross-sectional shape of the ridges used to form the impressions (paragraph [0048]). Inherently this controls the amplitude of oscillations.

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As to claim 8, Davis et al. teach that the contact element capable of oscillating and contacting the flexible graphite sheet to make impressions therein are tapered ridges (paragraphs [0012, 0036, 0039]).

As to claims 9 and 10, the ridges are tapered at a degree that appears to be greater than about 10° and less than about 90° (paragraph [0012], Figure 2b).

As to claim 11, Davis et al. teach that the contact element has a cross section shape selected to provide the desired shape or geometry of impressions (Figures 1a, 2a, 2b).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Davis et al. (U.S. Patent Application Publication 2002/0102321; published August 1, 2002)

Davis et al. teach the method of claim 1 as discussed in the 102(b) rejection above. However, Davis et al. do not explicitly discuss the frequency of oscillations. However Davis et al. teach that impressions may be made in continuous rolls of expanded graphite sheet (paragraph [0046]). It would have been *prima facie* obvious to control the frequency of oscillations to maximize the production rate while impressing the unwinding continuous roll, depending on the roll's particular attributes, (thickness, composition, etc.) while ensuring adequate quality of the impressions (paragraph [0046,0048]).

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Davis et al. (U.S. Patent Application Publication 2002/0102321; published August 1, 2002) in view of Mercuri et al. (U.S. Patent 6,528,199; issued March 4, 2003).

Davis et al. teach the method of claim 2 as discussed in the 102(b) rejection above. Additionally, Davis et al. teach the graphite sheet comprising a plurality of channels (paragraph [0005, 0009, 0043, 0044]). Davis et al. do not disclose the channel density in the flexible graphite sheet. However, Mercuri et al. teach a method for the production of an analogous flexible graphite sheet comprising approximately 150 – 450 channels/sq. centimeter.

Therefore it would have been *prima facie* obvious to one of ordinary skill at the time of the claimed invention to modify the generic method of forming a plurality

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transverse channels in a flexible graphite sheet taught by Davis et al. with the specific details taught by Mercuri et al. because one of ordinary skill would recognize that both the flexible graphite sheet taught by Davis et al. and Mercuri et al. are being utilized in analogous applications. Further, one would be motivated to find specific teaching on the generic channel density of transverse channels taught by Davis et al. The specific channel density taught by Mercuri et al. would have been an obvious choice for the reasons taught by Mercuri et al. (col. 3, lines 5-28).

Conclusion

All claims are rejected.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure [U.S. 4,596,171 (Gerber), U.S. 6,818,165 (Gallagher), U.S. 5,885,728 (Mercuri et al.), U.S. 6,436,568 (Schilling et al.) U.S. 6,451,241 (Ohliger et al.), and U.S. 6,649,102 (Davis et al.)].

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeff Wollschlager whose telephone number is 571-272-8937. The examiner can normally be reached on Monday - Thursday 7:00 - 4:45, alternating Fridays.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Colaianni can be reached on 571-272-1196. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JW

Jeff Wollschlager
Examiner
Art Unit 1732

March 31, 2006



MICHAEL P. COLAIANNI
SUPERVISORY PATENT EXAMINER